## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1       **Claim 1 (original):** A position information

2 transmission method for transmitting and receiving road

3 shape information and event information, the method

4 comprising the steps of:

5       intermittently selecting nodes in a target road

6 section on a digital map;

7       transmitting road shape information, wherein the

8 road shape information includes coordinate data of a

9 selected nodes and designates a target road section;

10       executing a map matching based on the road shape

11 information including coordinate information of the

12 selected nodes;

13       obtaining a road between the selected nodes by using

14 a route search; and

15       identifying the target road section on the digital

16 map;

17       wherein said steps of selecting nodes and

18 transmitting road shape information are executed at a

19 transmitting side, and

20       wherein said steps of executing a map matching,

21 obtaining a road, and identifying the target road section

22 are executed at a receiving side.

1        **Claim 2 (original):** The method according to claim

2    1,

3        wherein the road shape information transmitted from

4    the transmitting side includes supplementary information

5    indicating attributes of the selected nodes, and

6        wherein the receiving side references the

7    supplementary information in the step of executing a map

8    matching in order to determine the positions of the

9    nodes.

1        **Claim 3 (original):** The method according to claim

2    2,

3        wherein the supplementary information indicating the

4    attributes of the nodes includes at least one of a node

5    type, a node name, a number of connecting links, angles

6    between connecting links, and an intercept azimuth at the

7    selected node.

1        **Claim 4 (original):** The method according to claim

2    2,

3        wherein the supplementary information indicating the

4    attributes of the nodes includes an intercept azimuth at

5    the selected node and at least one of a node type, a node

6    name, a number of connecting links, and angles between

7    connecting links.

1    **Claim 5 (original):** The method according to claim

2    1,

3    wherein the road shape information transmitted from

4    the transmitting side includes supplementary information

5    indicating attributes of links included between the

6    selected nodes, and

7    wherein the receiving device references the

8    supplementary information during using the route search

9    in the step of obtaining the road between the nodes.


1    **Claim 6 (original):** The method according to claim

2    5,

3    wherein the supplementary information indicating the

4    attributes of the links includes at least one of a road

5    type, a road number, and a link type.


1    **Claim 7 (original):** The method according to claim

2    1,

3    wherein the transmitting side selects a plurality of

4    nodes arranged around the selected node in the step of

5    intermittently selecting nodes in the target road section

6    and transmits the road shape information including the

7    coordinate data of each selected node.


1    **Claim 8 (original):** The method according to claim

2    1, further comprising the steps of:

3    evaluating an accuracy of the matching at the

4    receiving side based on a distance from the node to a

5    closest point on an adjacent road and a difference

6    between the intercept azimuths at the node and at the

7    closest point on the adjacent road;

8         selecting a plurality of nodes arranged around the

9    selected node in the step of the intermittently selecting

10    nodes in the target road section; and

11         transmitting the road shape information including

12    the coordinate data of each selected node,

13         wherein the steps of evaluating an accuracy of the

14    matching, selecting a plurality of nodes, and

15    transmitting the road shape information are executed at

16    the transmitting side.

1    **Claim 9 (original):** The method according to claim

2    1, further comprising the steps of:

3         comparing a setting date of the digital map data of

4    the road in the target road section with a regulated

5    date; and

6         transmitting the road shape information including

7    data representing the road shape in the target road

8    section, in case of that the setting date is later than

9    the regulated date;

10         wherein the steps of the comparing a setting date

11    with a regulated date and transmitting the road shape

12    information are executed at the transmitting side.

1       **Claim 10 (previously presented):** The method

2 according to claim 1,

3       wherein the road shape information transmitted from

4 the transmitting side includes a setting date that the

5 digital map data of the road in the target road section

6 was set, and

7       wherein the step of identifying the target road

8 section is skipped in case of that the setting date is

9 later than a creation date of a digital map data which

10 the receiving side owns.


1       **Claim 11 (original):** The method according to claim

2 1,

3       wherein the road shape information transmitted from

4 the transmitting side includes distance data between the

5 intermittently selected nodes, and

6       the method further comprising the step of:

7       comparing the distance of the road connecting the

8 nodes obtained by way of the route search and the

9 distance between the nodes in the road shape information;

10 and

11       discriminating propriety of the route search;

12       wherein the steps of the comparing the distances and

13 discriminating the propriety are executed at the

14 receiving side.

1    **Claim 12 (original):** The method according to claim

2    1, further comprising the steps of:

3    evaluating an accuracy of the matching of nodes in

4    the target road section; and

5    determining a length of the target road section or

6    number of the nodes in the road shape information based

7    on the result of the step of evaluating;

8    wherein the steps of the evaluating the accuracy and

9    determining the length are executed at the transmitting

10   side.


1    **Claim 13 (original):** The method according to claim

2    12,

3    wherein, in the step of evaluating the accuracy, the

4    accuracy of the matching is evaluated based on a distance

5    from a node to a closest point on an adjacent road and

6    the difference between the intercept azimuths at the node

7    and at the closest point.


1    **Claim 14 (original):** A position information

2    transmission apparatus for transmitting road shape

3    information to specify the target road section on a

4    digital map, the apparatus comprising:

5    position information converting means for selecting

6    the target road section;

7    transmit node extracting means for intermittently

8    selecting nodes in the road shape information out of the

9    nodes arranged on the target road section; and

10      transmitting means for transmitting the selected

11   nodes of the target road section.


1        **Claim 15 (original):**   A position information

2   receiving apparatus for receiving road shape information

3   designating a target road section on a digital map and

4   for specifying the target road section based on the road

5   shape information, the apparatus comprising:

6        map matching means for performing map matching to

7   determine positions of selected nodes included in the

8   road shape information; and

9        route search means for obtaining the road connecting

10   the nodes determined to reproduce the target road

11   section.


1        **Claim 16 (original):**   The position information

2   receiving apparatus according to claim 15,

3        wherein the map matching means executes a map

4   matching based on node information of some of the nodes

5   included in the road shape information to determine the

6   positions of the nodes on a digital map.


1        **Claim 17 (previously presented):**   The position

2   information receiving apparatus according to claim 15,

3        wherein the map matching means executes a map

4   matching based on node information of at least two nodes

5   in the road shape information to determine the positions

6   of the nodes on a digital map.

1   **Claim 18 (previously presented):** A method for

2   identifying position of a target road section on a

3   digital map, said method comprising the steps of:

4       at a transmitting side having a first digital map,

5       creating position information of the target road

6   section on a first digital map, wherein said position

7   information includes coordinate information of nodes

8   selected from the target road section;

9       sending said position information of the target road

10  section;

11      at a receiving side having a second digital map,

12      receiving said position information of the target

13  road section;

14      calculating a path connecting said selected nodes on

15  the second digital map based on said coordinate

16  information; and

17      identifying position of said target road section on

18  the second digital map based on the calculated path.


1   **Claim 19 (previously presented):** The method

2   according to Claim 18,

3       wherein, in the step of calculating the path between

4   the selected nodes, said receiving side calculates the

5   shortest path between said selected nodes.

1    **Claim 20 (previously presented):**   The method

2    according to Claim 18,

3        wherein said nodes are intermittently selected from

4    the target road.


1    **Claim 21 (previously presented):**   A method for

2    identifying position of a target road section on a

3    digital map, said method comprising the steps of:

4        at a transmitting side having a first digital map,

5        creating position information of the target road

6    section on the first digital map, wherein said position

7    information includes nodes intermittently selected from

8    said target road section and representing said target

9    road section, coordinate information of the selected

10   nodes, and supplementary information;

11       sending said position information of said target

12   road section;

13       at a receiving side having a second digital map,

14       receiving said position information of said target

15   road section;

16       calculating a path connecting the selected nodes on

17   a second digital map with referring to at least the

18   supplementary information; and

19       identifying position of said target road section on

20   the second digital map based on said calculated path.

1 **Claim 22 (previously presented):** The method

2 according to any one of claims 18 to 21,

3 wherein said position information includes a node on

4 a intersection.


1 **Claim 23 (previously presented):** The method

2 according to any one of the claims 18 to 21,

3 wherein said position information includes a node on

4 any points between intersections.


1 **Claim 24 (previously presented):** The method

2 according to any one of claims 18 to 20,

3 wherein said position information includes a node in

4 the middle of distance between intersections or in the

5 vicinity of the middle of distance between intersections.


1 **Claim 25 (previously presented):** The method

2 according to Claim 21,

3 wherein said supplementary information indicates

4 attribute of the selected nodes.


1 **Claim 26 (previously presented):** The method

2 according to Claim 21,

3 wherein said supplementary information indicates

4 attribute of a path between said selected nodes.

1  **Claim 27 (previously presented):** The method

2  according to Claim 25,

3  wherein said attribute of nodes indicates any one of

4  a road type, an intercept azimuth, a crossing link angle,

5  and a road name, at each nodes.


1  **Claim 28 (previously presented):** The method

2  according to Claim 26,

3  wherein said attribute of path indicates any one of

4  a length and a road type, of the path.


1  **Claim 29 (previously presented):** A method for

2  identifying position of a target road section on a

3  digital map, said method comprising the steps of:

4  at a transmitting side having a first digital map,

5  creating position information of the target road

6  section, wherein said position information includes

7  coordinate information of nodes selected from the target

8  road section and at least a part of said nodes represent

9  a shape of a predetermined section of the target road

10  section;

11  sending said position information of the target road

12  section;

13  at a receiving side having a second digital map,

14  identifying position of said predetermined section

15  on the second digital map by using said shape;

16  calculating a path of the other section on the

17  second digital map; and

18    identifying position of the target road section on

19    the second digital map based on the identified position

20    of said predetermined section and the calculated path.


1     **Claim 30 (previously presented):**  The method

2     according to claim 29,

3          wherein said nodes representing said predetermined

4     section are selected more thickly than the other section.


1     **Claim 31 (previously presented):**  The method

2     according to claim 29,

3          wherein said predetermined section is a section

4     which is estimated to cause an error matching at the

5     sending side, or a section which is estimated to cause a

6     miscalculation of a path thereof at the sending side.


1     **Claim 32 (previously presented):**  The method

2     according to claim 29,

3          wherein said predetermined section falls into one of

4     a section to which plural roads run parallel and a

5     section having a possibility that plural paths are

6     calculated.


1     **Claim 33 (currently amended):**  An apparatus for

2     providing position information indicating a target road

3     section on a <u>first</u> digital map<u> to a receiving side having</u>

4     <u>a second digital map so that the receiving side can</u>

5 identify the target road section on the second digital

6 map, said apparatus comprising:

7          means for identifying a target road section on a

8 digital map;

9          means for intermittently selecting node groups from

10 points arranged on the target road section;

11          means for obtaining coordinate information of the

12 selected node groups;

13          means for creating position information from the

14 obtained coordinate information; and

15          means for transmitting the position information to

16 the receiving side.


1          **Claim 34 (currently amended):** An apparatus for

2 providing position information indicating a target road

3 section on a first digital map to a receiving side having

4 a second digital map so that the receiving side can

5 identify the target road section on the second digital

6 map, said apparatus comprising:

7          means for identifying a target road section on a

8 digital map;

9          means for selecting a predetermined section from the

10 target road section;

11          means for intermittently selecting nodes from points

12 arranged on the target road section in such manner that

13 nodes are selected more thickly in the predetermined

14 section than the other section of the target road

15 section;

16      means for obtaining coordinate information of the

17   selected nodes;

18      means for creating position information from the

19   obtained coordinate information; and

20      means for transmitting the position information.


1      **Claim 35 (previously presented):**   An apparatus for

2   identifying position of a target road section on a

3   digital map at a receiving side based on position

4   information on a digital map at a transmitting side, said

5   apparatus comprising:

6      means for determining position of nodes representing

7   the target road section on the digital map at the

8   receiving side based on the position information on the

9   digital map at the transmitting side;

10      means for calculating a path connecting the nodes;

11      means for identifying position of the road section

12   on a digital map at a receiving side; and

13      means for reproducing the road section on a digital

14   map at a receiving side.


1      **Claim 36 (currently amended):**   An apparatus for

2   identifying position of a target road section represented

3   by position information, said apparatus comprising:

4      a digital map;

5      means for determining position of nodes representing

6   the target road section based on the position

7   information;

8     means for calculating a path connecting the nodes;

9     means for identifying position of the road section;

10    and

11    means for reproducing the road section;

12    wherein said position identification means

13    identifies the position of the target road section <u>on the</u>

14    <u>digital map</u> based on the coordinate information of at

15    least one of the nodes included in the position

16    information.


1     **Claim 37 (currently amended):** An apparatus for

2     identifying position of a target road section represented

3     by position information, said apparatus comprising:

4     <u>a digital map;</u>

5     means for determining position of nodes representing

6     the target road section based on the position

7     information;

8     means for calculating a path connecting the nodes;

9     means for identifying position of the road section;

10    and

11    means for reproducing the road section;

12    wherein said position identification means

13    identifies the position of the target road section on <u>the</u>

14    <u>digital map</u> based on the coordinate information of at

15    least two of the nodes included in the position

16    information.

1    **Claim 38 (previously presented):**   A program product

2    for creating and transmitting position information, said

3    program product comprising a computer readable medium

4    including therein a computer readable program code, said

5    computer readable program code comprising:

6         program code means for creating position information

7    of a target road section on a first digital map, wherein

8    said position information includes node groups

9    intermittently selected from points of the target road

10   section and representing the target road section; and

11        program code means for transmitting said position

12   information to a receiving side having a second digital

13   map.


1    **Claim 39 (previously presented):**   A program product

2    for receiving position information and identifying a

3    position of a target road section represented by the

4    position information, said program product comprising a

5    computer readable medium including therein a computer

6    readable program code, said computer readable program

7    code comprising:

8         program code means for receiving the position

9    information including coordinate information of nodes

10   selected from points arranged on the object on a first

11   digital map;

12        program code means for calculating a path connecting

13   the nodes;

14      program code means for identifying position of the

15      object on a second digital map based on the coordinate

16      information and the calculated path.


1       **Claim 40 (previously presented):**  A method for

2       identifying a first road section on a first digital map,

3       and identifying a second road section, corresponding to

4       the first road section, on a second digital map, the

5       method comprising the steps of:

6           selecting the first road section on the first

7       digital map;

8           selecting first plural points located on the first

9       road section, on the first digital map;

10          creating location information indicative of

11      coordinates of the first plural points on the first

12      digital map;

13          identifying plural second points, corresponding to

14      the first plural points, on the second map with reference

15      to the location information;

16          calculating a path connecting the second plural

17      points on the second map; and

18          identifying the second road section on the second

19      map based on the path.


1       **Claim 41 (previously presented):**  A method for

2       identifying a first road section on a first digital map,

3       and identifying a second road section, corresponding to

4    the first road section, on a second map, the method

5    comprising the steps of:

6         selecting the first road section on the first

7    digital map;

8         extracting a part of the first road section as a

9    predetermined section on the first digital map;

10        selecting first plural points located on the first

11   predetermined section on the first digital map;.

12        creating location information indicative of

13   coordinates of the first plural points on the first

14   digital map;

15        creating positional information indicative of a

16   relative positional relationship between the first road

17   section and the first predetermined section on the first

18   digital map;

19        identifying plural second points, corresponding to

20   the first plural points, on the second map with reference

21   to the location information;

22        identifying a second predetermined section,

23   corresponding to the first predetermined section, on the

24   second digital map based on the plural second points; and

25        identifying the second road section on the second

26   map based on the second predetermined section and the

27   positional information.


1         **Claim 42 (previously presented):** The method

2    according to claim 40 or 41,

3   wherein the coordinate information indicates an

4   absolute coordinate of one of the first plural points as

5   the coordinate of the one of the first plural points, and

6   a relative positional relationship between the one of the

7   first plural points and another one of the first plural

8   points as the coordinate of the other one of the first

9   plural points.


1   **Claim 43 (previously presented):**  The method

2   according to claim 40 or 41,

3   wherein the first plural points include a start node

4   and an end node of the first road section on the first

5   digital map.


1   **Claim 44 (previously presented):**  A method for

2   identifying a road section on a digital map on a

3   receiving side with reference to location information on

4   a digital map at a transmitting side, the method

5   comprising the steps of:

6   identifying plural points on the digital map at the

7   receiving side with reference to the location information

8   on the digital map at the transmitting side;

9   calculating a path connecting the plural points on

10  the digital map at the receiving side; and

11  identifying the road section on the digital map at

12  the receiving side based on the path.